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EXAMINER	
CULLER, JILL E	

ART UNIT	PAPER NUMBER
2854	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,331	ORLANDI ET AL.	
	Examiner	Art Unit	
	Jill E. Culler	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,19-22 and 24-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,19-22 and 24-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 7, 19-22, 28, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,688,222 to Cattaruzza et al. in view of U.S. Patent No. 6,298,779 to Gotanda et al. and U.S. Patent No. 4,922,337 to Hunt et al.

With respect to claim 1, Cattaruzza et al. teaches equipment for printing on fabric, comprising a support, 2, driven such as to transport a sheet of fabric, at least one driven printing body, 11, in order to carry out the printing and a control and command unit operatively connected with each of said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turn said signals into numerical values representative of the status of their angular speed, compare said numerical values with a desired speed and send signals to said support and at least one printing body in order to correct any possible variations in said values. See column 3, lines 9-50 and Fig. 1.

Cattaruzza et al. does not teach an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said non-woven fabric in order to detect the presence of creases or variations in the printing with respect to a preset standard, wherein said image acquiring

device acquires an image of said non-woven fabric and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device. Cattaruzza et al. also does not explicitly teach that the control and command unit turns said signals into numerical values representative of both the angular speed and the torque moment, compare said numerical values with ratios of preset numerical values of said angular speed and said torque moments and send signals to correct any possible variations in both values.

Hunt et al. teaches equipment for controlling the movement of a continuously moving web comprising an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said web, wherein said image acquiring device acquires an image of said web and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device and uses said signals to control the movement of said web. See column 3, line 65 - column 4, line 47 and Fig. 2A.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include an image acquiring device, as taught by Hunt et al., in order to maintain efficient operation of the apparatus.

Gotanda et al. teaches a control and command unit which receives signals from a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of

preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

With respect to claim 4, Cattaruzza et al. teaches that said support is driven by means of a motor, 5, and wherein said at least one printing body is driven by a motor, 6, 7. See column 3, lines 9-50 and Fig. 1.

With respect to claim 4, Cattaruzza et al. teaches that said support is a cylindrical support represented by a press roller. See column 3, lines 9-50 and Fig. 1.

With respect to claim 7, Cattaruzza et al teaches that said at least one printing body comprises from two to twelve rotating engraved rollers operated individually and independently by motors. See column 3, lines 9-50 and Fig. 1.

With respect to claim 19, Hunt et al. teaches said device is a camera or video camera. See column 3, line 65 - column 4, line 47 and Fig. 2A.

With respect to claim 20, Hunt et al. teaches said image acquiring device is a digital device. See column 3, line 65 - column 4, line 47 and Fig. 2A.

With respect to claim 21, Cattaruzza et al. teaches a process for the printing of fabric comprising the steps of: providing a fabric sheet; providing an equipment for printing on fabric comprising a driven support, 2, for the transportation of said fabric and

at least one driven printing body, 11; feeding said equipment with said fabric sheet; performing the printing on said fabric under the control and command of a control and command unit, wherein said control and command unit is operatively connected with said support and at least one printing body such as to detect electrical signals originating from said support and at least one printing body, turning said signals into numerical values representative of the status of their angular speed, comparing said numerical values with a desired speed and sending signals to said support and at least one printing body in order to correct any possible variations of said values which fall out with said ratios. See column 3, lines 9-50 and Fig. 1.

Cattaruzza et al. does not teach an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said non-woven fabric in order to detect the presence of creases or variations in the printing with respect to a preset standard, wherein said image acquiring device acquires an image of said non-woven fabric and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device. Cattaruzza et al. also does not explicitly teach that the control and command unit turns said signals into numerical values representative of both the angular speed and the torque moment, compare said numerical values with ratios of preset numerical values of said angular speed and said torque moments and send signals to correct any possible variations in both values.

Hunt et al. teaches equipment for controlling the movement of a continuously moving web comprising an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said web, wherein said image acquiring device acquires an image of said web and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device and uses said signals to control the movement of said web. See column 3, line 65 - column 4, line 47 and Fig. 2A.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include an image acquiring device, as taught by Hunt et al., in order to maintain efficient operation of the apparatus.

Gotanda et al. teaches a control and command unit which receives signals from rotating bodies in a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cataruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

With respect to claim 22, Cattaruzza et al. teaches that said control and command unit acts separately and independently on each motor which operates the corresponding rotating body of the equipment such as to make reference to the same electrical axis. See column 3, lines 9-50 and Fig. 1.

With respect to claim 28, Cattaruzza et al. teaches that the printing stage occurs by means of flexographic (ink) or serigraphic (colored paste) methods. See column 3, lines 9-50 and Fig. 1.

With respect to claim 31, although Cattaruzza et al. does not explicitly teach that printing takes place at a speed of up to 400 m/min on a sheet of wet or dry non-woven-fabric, it would have been obvious to one having ordinary skill in the art at the time of the invention that the optimum speed of the printing is dependent upon a variety of other process factors and can best be determined through routine experimentation.

With respect to claim 32, Cattaruzza et al. teaches a fabric obtainable by means of the process according to claim 21. See column 3, lines 9-50 and Fig. 1.

With respect to claim 33, Cattaruzza et al. teaches the fabric can have multicolor text and/or drawings. See column 3, lines 9-50 and Fig. 1.

Claims 3, 5-6, 8-9, 15-16 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al. and Hunt et al., as applied to claims 1, 2, 4, 7, 19- 22, 28, and 31-33 above, and further in view of U.S. Patent No. 6,427,586 to Takahashi.

With respect to claim 3 and 34, Cattaruzza et al., Gotanda et al. and Hunt et al. teach all that is claimed, as in the above rejection, except that said driven support is provided with through holes which cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support.

Takahashi teaches a printer having a driven support provided with through holes which cooperate with holding means in order to hold the sheet of non-woven-fabric onto said support. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include holes in the support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 5-6, Cattaruzza et al., Gotanda et al. and Hunt et al. teach all that is claimed, as in the above rejection, except that said support is a press belt, which is a perforated belt closed on itself.

Takahashi teaches a printer having a driven support which is a press belt, which is a perforated belt closed on itself. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to have a perforated press belt for support, as taught by Takahashi, in order to more firmly hold the fabric onto the support.

With respect to claims 8-9, Takahashi teaches said holding means comprise suction fans having the function of sucking air from the outside of the support towards

its inside through said through holes, wherein said suction fans are represented by fans. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

With respect to claims 15-16, Cattaruzza et al., Gotanda et al. and Hunt et al. teach all that is claimed, as in the above rejection, except for guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors.

Takahashi teaches a printer having guide means suitable to guide and support the inlet and outlet sheet of non-woven-fabric from said equipment, wherein said guide means are rollers individually and independently motor-driven by corresponding motors. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to have guide means, as taught by Takahashi, in order to better move the fabric through the printer.

With respect to claims 24-26, Cattaruzza et al., Gotanda et al. and Hunt et al. teach all that is claimed, as in the above rejection, except for an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-woven-fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit.

Takahashi teaches a printer having an operation stage of holding means in order to hold the non-woven-fabric sheet onto the outer surface of the support, wherein said operation stage of the holding means is achieved by suction fans which, by sucking air from the outside towards the inside of the support through holes, hold the non-woven-fabric onto said support, also comprising a control stage of the operation of the holding means by said control and command unit. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the process of Cattaruzza et al. to have the operation and control, as taught by Takahashi, in order to better transport the fabric through the printer.

Claims 10-14 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al., Hunt et al. and Takahashi as applied to claims 3, 5-6, 8-9, 15-16 and 24-26 above, and further in view of U.S. Patent No. 5,881,440 to Deeming et al.

Cattaruzza et al., Gotanda et al., Hunt et al. and Takahashi teach all that is claimed, as in the above rejection, except that said suction fans are represented by pumps of the compressor or vacuum pump type, wherein said suction fans are connected to a water separator in the form of a condenser or a distillatory that separates the water from the air by mechanical and physical action.

Deeming et al. teaches that in the manufacture of non-woven fabric it is desirable to transport the fabric on a belt through which the water can be separated by a vacuum. See column 2, lines 45-56.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include well known apparatus for water separation, as taught by Deeming et al., in order to be able to make the fabric more suitable for the printing process.

Claims 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al., Gotanda et al., Hunt et al. and Takahashi as applied to claims 3, 5-6, 8-9, 15-16 and 24-26 above, and further in view of U.S. Patent No. 5,312,500 to Kurihara et al.

Cattaruzza et al., Gotanda et al., Hunt et al. and Takahashi teach all that is claimed, as in the above rejection, except wherein at least one pair, of said guide means are positioned at the ingoing non-woven-fabric into the printing stations and consist of widening means which allow increasing the height of the non-woven-fabric, comprising a widening stage in order to ensure the maintenance of the product height.

Kurihara et al. teaches that widening is a desirable function when working with a non-woven fabric. See column 14, lines 8-16.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include structure for

widening, as taught by Kurihara et al. in order to improve the quality of the non-woven fabric.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al. and Hunt et al., as applied to claims 1, 2, 4, 7, 19-22, 28, and 31-33 and further in view of U.S. Patent No. 6,024,018 to Darel et al.

With respect to claim 29, Cattaruzza et al., Gotanda et al. and Hunt et al. teach all that is claimed, as in the above rejection, except a dye control stage by the control and command unit through the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed.

Darel et al. teaches a printer having a dye control stage by the control and command unit through the optimization of the characteristics of each dye, such as flow, pressure and viscosity, depending on the type of non-woven-fabric to be printed. See column 5, lines 19-44 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the apparatus of Cattaruzza et al. to include a dye control stage, as taught by Darel et al. in order to maintain the process settings at optimum levels.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cattaruzza et al. in view of Gotanda et al. Hunt et al. and Takahashi.

With respect to claim 34, Cattaruzza et al. teaches equipment for printing on non-woven-fabric, comprising a driven support so as to transport a sheet of non-woven-fabric, at least one driven printing body for implementing the printing and driven holding means which interact with said support in order to hold said sheet onto said support,.

Cattaruzza et al. does not teach the driven support is provided with through holes, an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said non-woven fabric in order to detect the presence of creases or variations in the printing with respect to a preset standard, wherein said image acquiring device acquires an image of said non-woven fabric and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device, or that both angular speed and torque moment of said support and said printing body are controlled in order to correct variations thereof that fall outside of predetermined numerical values

Takahashi teaches a printer having a driven support that is provided with through holes. See column 5, lines 1-20, column 9, line 54-column 10, line 15 and Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Cattaruzza et al. to have the support through holes, as taught by Takahashi, in order to better move the fabric through the printer.

Hunt et al. teaches equipment for controlling the movement of a continuously moving web comprising an image acquiring device operatively connected to said control and command unit, said image acquiring device constantly monitoring said web,

wherein said image acquiring device acquires an image of said web and sends electrical signals representative of said acquired image to said control and command unit and wherein said control and command unit detects electrical signals originating from said image acquiring device and uses said signals to control the movement of said web. See column 3, line 65 - column 4, line 47 and Fig. 2A.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include an image acquiring device, as taught by Hunt et al., in order to maintain efficient operation of the apparatus.

Gotanda et al. teaches a control and command unit which receives signals from rotating bodies in a printing apparatus, turns said signals into numerical values representative of both the angular speed and the torque moment, compares said numerical values with ratios of preset numerical values of said angular speed and said torque moments and returns signals to correct any possible variations in both values. See column 4, lines 41-65 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Cataruzza et al. to include control for the angular speed and torque moment, as taught by Gotanda et al., in order to maintain efficient operation of the apparatus.

Response to Arguments

Applicant's arguments filed December 29, 2010 have been fully considered but are moot in view of the new ground(s) of rejection over Hunt et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571)272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec

/Jill E. Culler/
Primary Examiner, Art Unit 2854